

## CLAIMS

1. An injection molding apparatus, comprising:
  - a hot runner manifold, at least one nozzle, and a mold,
    - wherein the mold defines a mold cavity and a gate into the mold cavity for receiving melt from the nozzle,
      - wherein the nozzle comprises a nozzle body, a tip, and a nozzle seal attached to the nozzle body and surrounding the tip,
        - wherein the nozzle body comprises a melt channel therethrough for receiving melt from the manifold,
        - wherein the tip comprises a tip melt channel therethrough that is downstream from and in fluid communication with the nozzle body melt channel, and is positioned upstream from and in fluid communication with the gate,
        - wherein the nozzle seal contacts the mold adjacent the gate such that the mold, the nozzle seal and the tip define an annular melt space adjacent the gate through which melt can flow from the tip melt channel to the gate, and
        - wherein at least a portion of the exterior surface of the tip in the annular melt space comprises a diamond-type coating.
  2. An injection molding apparatus according to claim 1, wherein the surfaces of the nozzle seal that are exposed to the annular melt space comprise a diamond-type coating.
  3. An injection molding apparatus according to claim 2, wherein the surface of the tip melt channel comprises a diamond-type coating.
  4. An injection molding apparatus according to claim 1, wherein the surface of the tip melt channel comprises a diamond-type coating.
  5. An injection molding apparatus according to any one of claims 1 to 4, wherein the diamond-type coating is applied directly to the surface(s).

6. An injection molding apparatus according to any one of claims 1 to 4, wherein the diamond-type coating is applied to an intermediate layer of a different material applied directly to the surface(s).
7. An injection molding apparatus according to claim 6, wherein the intermediate layer comprises molybdenum.
8. A nozzle for an injection molding apparatus, the injection molding apparatus having a mold defining a mold cavity and a gate into the mold cavity for receiving melt from the nozzle, the nozzle comprising:
  - a nozzle body comprising a nozzle body melt channel therethrough for receiving melt from a melt source;
  - a tip comprising a tip melt channel therethrough that is downstream from and in fluid communication with the nozzle body melt channel, and is adapted to be positioned upstream from and in fluid communication with the gate; and
  - a nozzle seal attached to the nozzle body and surrounding the tip, the nozzle seal adapted to contact the mold adjacent the gate such that the mold, the nozzle seal and the tip define an annular melt space adjacent the gate through which melt can flow from the tip melt channel to the gate,wherein at least a portion of the exterior surface of the tip in the annular melt space comprises a diamond-type coating.
9. A nozzle according to claim 8, wherein the surfaces of the nozzle seal that are exposed to the annular melt space comprise a diamond-type coating.
10. An injection molding apparatus according to claim 9, wherein the surface of the tip melt channel comprises a diamond-type coating.
11. An injection molding apparatus according to claim 8, wherein the surface of the tip melt channel comprises a diamond-type coating.

12. An injection molding apparatus according to any one of claims 8 to 11, wherein the diamond-type coating is applied directly to the surface(s).
13. An injection molding apparatus according to any one of claims 8 to 11, wherein the diamond-type coating is applied to an intermediate layer of a different material applied directly to the surface(s).
14. An injection molding apparatus according to claim 13, wherein the intermediate layer comprises molybdenum.
15. A tip for an injection molding nozzle for delivering melt flowing through the nozzle to the gate area of a mold, the tip comprising:
  - a tip body adapted to be retained by the injection molding nozzle adjacent the gate area of the mold;
  - a tip melt channel extending through the tip body; and
  - a diamond-like coating on at least a portion of the tip that is exposed to the melt in the gate area.
16. A tip according to claim 15, wherein the surface of the tip melt channel comprises a diamond-type coating.
17. A tip according to claim 15 or claim 16, wherein the diamond-type coating is applied directly to the surface(s).
18. A tip according to claim 15 or claim 16, wherein the diamond-type coating is applied to an intermediate layer of a different material applied directly to the surface(s).
19. A tip according to claim 18, wherein the intermediate layer comprises molybdenum.